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HOW TO Control Sapstreak Disease of Sugar Maple

Reserve
aSB608
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North Central Forest Experiment Station
Forest Service
U.S. Department of Agriculture

Sapstreak disease, caused by the fungus *Ceratocystis coerulescens*, is a serious threat to sugar maple forests. Although the disease is causing only minor damage at present, it has the potential to become an important problem. Sapstreak is a fatal disease; infected trees do not recover. In addition, timber salvage value is low because the wood is discolored.

Sapstreak has been reported in isolated areas of North Carolina, Michigan, Wisconsin, and Vermont. Only sugar maple is affected. At present the best sapstreak control method is prompt removal of newly discovered infected trees to prevent spread to nearby healthy trees. The disease is spread by insect-disseminated ascospores and endoconidia that infect trees through root and basal trunk wounds.

SYMPTOMS

The first noticeable symptom of sapstreak is a dwarfing of the foliage on all or a portion of the crown. In following years, the dwarfing becomes more pronounced, spreads to previously unaffected parts of the crown, and parts of the crown die. Generally after 3 to 4 years the entire tree dies.



Look For:
Dwarfing of leaves
and crown dieback.

During this time, the wood of the lower stem and root system becomes stained in a characteristically radiating pattern.



Look For:

Water-soaked gray to brown radiating patterns. On freshly cut trees, tips of the streaks nearest the bark may be green or red.

Sapstreak pattern on stump.



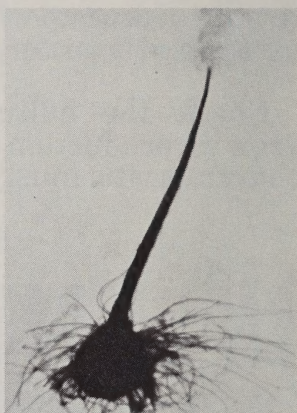
Sporulation of sapstreak fungus on the end of a log which had been left lying in the woods for a few summer days.



FRUITING STRUCTURES AND SPORES

Look For: Two kinds of fruiting structures on freshly cut logs and stumps.

Ascospore stage — long-necked black perithecia with bases bearing long, slender, dark, thin-walled hyphae. (100X)



Conidial stage — endoconidiospores (a) which extrude barrel- to oval-shaped hyaline endoconidia (b). (200X)

CULTURING

To isolate the fungus aseptically split open a block of streaked wood and carefully remove chips with chisel and forceps. Plate the chips on almost any medium recommended for routine growth of fungi, such as potato-dextrose agar, and incubate at 20 to 25 C in the

light. Another isolation procedure is to incubate pieces of streaked wood in moist chambers at room temperature until the perithecial stage of the fungus develops on the wood. After a few days, masses of ascospores will accumulate at the tips of the perithecial necks. These spores can then be picked up with a sterile dissecting needle and transferred to an agar plate.

Check the culture for dark rapid growth, production of endoconidia, and a characteristic musty, sweet odor.



CONTROL

Losses can be minimized by preventing or eliminating entry points for the disease.

- Avoid wounding maple trunks and roots during logging.
- Apply a wound dressing to any wounds that do occur.
- Remove diseased logs promptly.

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